

REMARKS

Reconsideration of the present application is respectfully requested in view of the foregoing amendments and the remarks which follow.

I. Status of the Claims

Applicants have amended claims 1, 10, 16, 17, 18 and 24, all in a consistent way. Claim 3 has been canceled. (Claims 4-9, 11, and 19-23 were previously canceled.) No new matter has been added. Following entry of these amendments, claims 1, 2, 10, 12-18 and 24 are pending in the application.

II. Claim Objections

Claim 18 was objected to for informalities, in particular, "(ID)" should be "(D)". Claim 18 has been amended in a way that the term "(ID)" has been removed.

III. Rejections under 35 U.S.C. § 112

Claim 24 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 24 has been amended.

IV. Rejections under 35 U.S.C. § 103

A. Rejection Based on Pope and Rubin

Claims 1, 2, 10, and 12-15 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,655,845 to Pope, in view of U.S. Patent No. 5,064,547 to Rubin. Applicants respectfully traverse this rejection for at least the following reasons.

First, the independent claims have been amended to more clearly define the invention. Specifically, the recitation concerning "aliphatic amine compound (D)" is deleted and the subject matter for prior claim 3 has been added to each of the independent claims.

Second, as previously discussed, in the low-friction sliding mechanism of the present invention, a low-friction agent composition is present between the sliding surfaces of a DLC-coated sliding member (A) and a sliding member (B). As presently claimed, the base material is coated with diamond-like carbon having a hydrogen content of 20 atomic percent or less is used on the DLC coated sliding member (A), and a metal material, non-metal material and/or coated material obtained by coating a thin film on a surface of the metal material or the non-

metal material is used as the sliding member (B). The low-friction agent composition to be used contains at least one oxygen-containing organic compound (C) selected from the group consisting of alcohols, esters, ethers, ketones, aldehydes, carbonates and derivatives thereof.

In this sliding mechanism arrangement, by combining particularly the low hydrogen content diamond-like carbon coating film and the low-friction agent composition containing the particular oxygen-containing compound as claimed, extremely excellent low friction characteristics can be obtained as compared with that obtained by conventional combinations of sliding members and lubricant.

Third, regarding the cited reference Pope, Pope discloses a rolling bearing having A roller and a race whose surface is coated with polycrystalline diamond (see its Abstract). (Further, Pope is directed to axle rolling bearing which is quite different in technical field and effect from the sliding members of the present invention.)

Fourth, the cited reference Rubin discloses a lubricant composition containing saturated dicarboxylic acid and ester (alcohol) for the purpose of providing a lubricant with corrosion inhibiting properties (column 7, lines 13-26), also as pointed out by the Examiner. Because such a compound in Rubin is used only for the purpose of inhibiting corrosion and not for purpose of reducing friction, there is no motivation of combining Rubin with Pope in order to reach the present invention.

Fifth, none of these two cited references disclose or suggest the technical idea of applying the above oxygen-containing organic compound at the DLC sliding surface and the positive achievements of the combination of the oxygen-containing organic compound and the DLC coated sliding member and remarkable friction reduction and wear resistance improvement effects obtained by the combination. These positive achievements are set forth in the specification as originally filed.

Therefore, combining Pope and Rubin does not render obvious the present invention.

B. Rejection Based on Pope, Rubin and Veerasamy

Claims 3 and 16-18 were rejected under 35 U.S.C. § 103(a) over Pope, in view of Rubin and further in view of U.S. Patent No. 7,067,175 to Veerasamy. Claim 3 has been canceled and claims 16-18 have been amended. Applicants respectfully traverse this rejection

for at least the same reasons set forth above in connection with the first rejection. Further, Veerasamy discloses a DLC (ta-C) containing no hydrogen (see column 8, lines 35 and 36).

C. Rejection Based on Pope and Morway

Claim 24 was rejected under 35 U.S.C. § 103(a) over Pope in view of U.S. Patent No. 3,196,109 to Morway. Claim 24 has now been amended. Applicants respectfully traverse this rejection for at least the same reasons set forth above in connection with the first rejection.

First, Morway discloses a lubricating grease containing sorbitan monooleate for the purpose of inhibiting corrosion (see column 3, lines 17 to 24), also as pointed out in the Office Action. The Morway compounds are used only for the purpose of inhibiting corrosion and, not for purpose of reducing friction. Therefore, there is no motivation for combining Morway with Pope in order to reach the present invention.

Second, neither Pope nor Morway disclose or suggest the technical idea of applying the claimed oxygen-containing organic compound at the DLC sliding surface and the positive achievements of the combination of the oxygen-containing organic compound and the DLC coated sliding member, and the remarkable friction reduction and wear resistance improvement effects obtained by the combination. There is no motivation of combining Pope and Morway in order to reach the present invention.

As discussed above, the claims of the present application are believed not to be obvious over the above cited references.

V. Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested. The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application. The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a

rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicants hereby petition for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

Date April 12, 2011

By Michael D. Kaminski

FOLEY & LARDNER LLP
Customer Number: 22428
Telephone: (202) 672-5490
Facsimile: (202) 672-5399

Michael D. Kaminski
Attorney for Applicant
Registration No. 32,904